

DATA ITEM DESCRIPTION

Form Approved
OMB No 0704-0188

1. TITLE

Design to Cost (DTC) Plan

2 IDENTIFICATION NUMBER

DI-MISC-80856

3. DESCRIPTION/PURPOSE

3.1 The DTC Plan provides the procuring activity with a description of the contractor's DTC program.

3.2 The plan shall enable the procuring activity to ascertain with a high degree of confidence that the contractor has adequately evaluated and planned for an active engineering cost control effort.

4 APPROVAL DATE (YYMMDD)

890619

5 OFFICE OF PRIMARY RESPONSIBILITY (OPR)

A/AMCDE-PQ

6a DTC APPLICABLE

6b GIDEP APPLICABLE

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the DTC Plan resulting from the work task described in 4.1.1 of MIL-STD-337.

7.2 This DID is applicable to the acquisition of both hardware and software systems, subsystems, components and equipment.

7.3 This DID shall be tailored for each application.

8. APPROVAL LIMITATION

9a. APPLICABLE FORMS

9b. AMSC NUMBER

A4757

10 PREPARATION INSTRUCTIONS

10.1 Reference documents. The applicable issue of the documents cited herein including their approval dates and dates of any applicable amendments, notices, and revisions shall be as specified in the contract.

10.2 Format. The DTC Plan format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions.

10.3 Content. The DTC Plan shall contain the following:

10.3.1 Cost control strategy. This section of the plan shall discuss the contractor's approach for making cost equal in importance to performance and schedule requirements in the evolving design, for balancing the projected future costs of production, operation, and support, and for taking active measures to meet the cost targets. This includes identifying the degree of risk involved in meeting the cost targets and the appropriate level of cost control activity to contain this risk.

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11 DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A:

Approved for public release; distribution is unlimited.

Block 10, Preparation Instructions (Continued)

Additionally, this includes the contractor's approach for instilling cost discipline in decision-making personnel (e.g. allocation of cost subtargets, management by objectives, awards, publicity, etc.); providing appropriate level of cost visibility and cost status feedback to the cognizant managers and designers; establishing procedures for make or buy decisions, controlling vendors and subcontractors; establishing ground rules for adjusting targets (e.g. to account for such things as estimating errors, engineering change proposals, specification changes, etc.); and the rationale showing how the cost targets were established and the methodology used to control and balance production, operation, and support cost. This section of the plan shall also provide a list of all required tradeoff studies, showing how they relate to the major cost drivers and include a discussion of any major cost drivers which will not be addressed in sufficient depth during the formal engineering and logistic tradeoff process. High risk and high cost items shall be identified and receive special management attention. Also, this section shall discuss plans for timely Government visibility into the contractor's DTC program via an electronic link.

10.3.2 Organization. This section of the plan shall discuss the contractor's organization for executing the cost control strategy in an effective and efficient manner. This includes the management structure, contractor decision and approval authority, policies and procedures, and functional relationships for making cost a key decision and design parameter. Discuss the allocation of cost subtargets in terms of organizational lines of authority and responsibility and how these subtargets will be maintained as realistic indicators to management as to where the cost problems are and where cost reduction efforts should be directed. Additionally, this section includes discussion of the functional responsibilities, analytical techniques, and data processing capability for providing current, concise, and timely cost feedback to the decision-makers. Justify organizational elements which are uniquely DTC-related. If value engineering is contributing to cost reductions, show how it relates to the DTC effort. Organization for the DTC function does not imply new organizational entities. For many companies with prior military contracting experience, the functions contributing to an integrated DTC effort are already in place (e.g. systems engineering, value analysis, logistics, production planning, reliability, cost analysis and estimating, etc.).

10.3.3 Milestones. This section of the plan shall provide a schedule for reviewing the status and effectiveness of the DTC program.

10.3.4 DTC tradeoff studies. This section of the plan shall discuss the selection and identification of any DTC tradeoffs which are necessary to address major cost drivers not covered in other formal engineering or logistic tradeoff studies. Discuss reporting results for these studies.

Block 10, Preparation Instructions (Continued)

10.3.5 Cost methodology. This section of the plan shall discuss the procedures for identifying the DTC recommended alternative for formal tradeoff studies, and for providing the necessary schedule, level of effort, and means and depth of detail of cost visibility to support the day-to-day efforts to avoid and control cost in the emerging design. A flowchart shall illustrate the analytical tools, procedures, and data flow which combine to determine the DTC recommendation for formal tradeoff studies (e.g. system effectiveness, readiness, Life Cycle Cost (LCC), discounting, comparison to programmed acquisition funding profiles, etc.). Another chart shall illustrate data flow, analytical tools, and communication channels for providing high quality, timely, and concise cost information to the cognizant decision-making and design personnel. A table shall identify Government furnished data required for input to contractor cost models. For multi-service procurements the Government furnished data requirements shall be identified for each participating DoD component (i.e. Air Force, Army, Navy, and Marine Corps). The discussion of the cost methodology shall include a discussion of the approach used for analyzing each relevant life cycle phase (conceptual exploration, demonstration and validation full-scale development, production and operation and support) and how these parts fit together to produce a total cost approach. Cost modeling shall be based on the most current hardware and software configuration, retrofit planning, and support concept. Cost model documentation procedures shall be discussed showing how an audit trail will be maintained for input data and supporting rationale, cost estimating techniques, estimates and analysis results.

10.3.6 DTC baseline. The cost methodology identified by the contractor to support the DTC program shall be exercised and documented to show the initial or baseline estimates for the cost targets and LCC. This part of the plan shall be submitted as Appendix A. The DTC baseline shall be sufficiently comprehensive to enable the procuring activity to ascertain with a high degree of confidence that (1) the contractor has performed cost analysis of a high technical quality based on the best available data; (2) the contractor's cost methodology is sufficiently sensitive to the type and depth of engineering design tradeoffs expected to be encountered during the contract; and (3) verify through independent cost analysis that the contractor's numbers are reasonable and correct.

10.3.7 Baseline LCC estimate. This section of the baseline shall present the contractor's initial or baseline LCC estimate. LCC estimating and analysis shall be based on those cost elements influenced by the contractor's design and development decisions.

10.3.8 Baseline inclusion. The DTC and LCC baselines shall include the following sections:

(a) **Executive summary.** The executive summary shall be limited to one page briefly describing the program and stating the results and conclusions of the report.

Block 10, Preparation Instructions (Continued)

(b) Table of contents. This section shall contain the list of figures, and the list of tables.

(c) Introduction. The introduction shall contain a brief description of the weapon system in terms of schedule phase, program requirements, etc.

(d) Ground rules and assumptions. This section shall describe key assumptions made in the costing of the system including quantities, schedules production rates, state of technology, program base year, inflation rates, and hardware and software configuration. Also listed shall be: (1) items that are not included in the estimate, such as Government Furnished Equipment (GFE) or other items that make up the weapon system but are not under the contractor's control and (2) General and Administrative (G&A) and fee percentages.

(e) Contract Work Breakdown Structure (WBS). This section shall list the WBS down to the level as specified in the Statement of Work (SOW). If the WBS is not specified, the WBS shall conform to the guidelines in MIL-STD-881 and DoDI 5000.33.

(f) Methodology. The methodology section shall include a discussion of the methods used to generate the cost estimate. Learning curve first unit cost, slopes and type of curve (unit or cumulative average) shall be stated along with backup information used to determine these parameters. (This section shall make up the bulk of the report containing enough information to substantiate the entire estimate). Included shall be discussions of any analogies, why they were used, and how the actual costs were modified to fit the new components. If man-hour buildups are used, discussions shall center on the rationale used for man-loading levels.

(g) Results. The results section shall contain the contractor's DTC estimate in base year dollars by the WBS listed in the assumption section. All costs should be fully burdened with overhead, G&A and fee in base year dollars. The costs shall be shown for all phases of the program unless otherwise specified. Actual costs shall be used upon phase completion. In addition, a summary level time phases estimate shall be submitted for Research and Development (R&D) and production.

(h) Conclusion. The conclusion section is for the contractor's cost analysis to communicate findings to the Government. This section shall mention cost of alternative designs, trade studies, pending engineering changes, and accuracy of confidence levels of the results section.

10.3.9 Cost target estimates. This section of the baseline shall, if cost targets have not yet been established, present the contractor's proposed cost targets with the cost estimates and rationale to support them.

Block 10, Preparation Instructions (Continued)

If the cost targets have been established, the contractor shall present the initial estimates and supporting rationale. In either case, the contractor shall identify the major cost drivers (i.e. for production and logistics (operation and support)) and show how they relate to the cost targets. A table shall show the allocated cost subtargets and the corresponding responsible contractor point of contact. If the instant contract includes production options, discuss the relationship of these production prices to the production cost target (e.g. experience and learning curves, lot size, inflation, etc.).

10.3.10 Supporting rationale. Supporting rationale for the DTC and LCC baselines shall include all guidelines, assumptions, ground rules, and methodology. Data sources and cost prediction methodology shall be described in terms of applicability to the stage of design maturity and the state-of-the-art. Alternate approaches or sources considered for the analysis or used for cross-checking purposes, and the associated risk or uncertainty shall also be described in these terms. Cost estimating expressions for each cost element shall be included with a definition of variables and a substantiation of corresponding values. For cases where the procuring activity has prescribed a cost model, include only the input data necessary to reproduce the analysis plus the supporting rationale. For cost drivers summarize the sensitivity analysis or other techniques used to identify them.

10.3.11 DTC action plan. This part of the plan applies when cost targets have been established. As a revision to the DTC Plan to be included as Appendix B, the contractor shall prepare a DTC action plan for each instance where the projected cost of the current design is above a cost target or threshold. This plan shall identify the specific effort necessary to control cost and to get the projected cost back to an acceptable level. This cost reduction effort shall be discussed in terms of the cost to implement, schedule, risk, and benefits.